SAN FRANCISCO BAY MERCURY TMDL
PROJECT PLAN

Waterbody: San Francisco Bay
Pollutant: Mercury
Beneficial Uses: Fishing (COMM), rare and endangered species (RARE), wildlife (WILD)
Water Quality Objectives: Bioaccumulation
Watershed Location: Bay Area and Central Valley
TMDL Completion Date: March 2004
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Major Milestones, Products, and Completion Dates

Task	Fiscal Year	Schedule
Preliminary Staff Report (North Bay)	97-98	June 1998
Preliminary TMDL Project Report	99-00	June 2000
Final TMDL Project Report	03-04	June 2003
Draft Basin Plan Amendment	03-04	January 2004

Approach:

This TMDL's ***problem statement*** relies on data collected through the Regional Monitoring Program for Trace Substances (RMP). Data are available for total recoverable mercury concentrations and mercury concentrations in suspended sediment. Fish collected from San Francisco Bay often contain relatively high mercury concentrations. The California Office of Environmental Health Hazard Assessment has issued fish consumption advisories warning people to limit their consumption of San Francisco Bay fish. In addition, studies have shown that birds consuming fish and other organisms from San Francisco Bay pass mercury to their eggs, potentially contributing to reproductive failures.

Numeric targets are being developed to protect human health and wildlife. A proposed target for mercury in fish tissue will allow sport and subsistence fishers to consume the fish they catch without experiencing adverse health effects. A proposed target for mercury in bird eggs will sustain wildlife and endangered species populations. A proposed target for mercury in suspended sediment will be linked to the other targets and be used to allocate loads.

The ***source assessment*** quantifies the contributions of various mercury sources and describes the uncertainties associated with them. Sources include runoff from historic mines, urban runoff, wastewater discharges, atmospheric deposition, and resuspension of historic deposits of mercury-laden sediment already in San Francisco Bay. Most of the historic mercury deposits date back to the Gold Rush of the 1800's, when mercury was mined throughout the Coastal Range and used in the Sierra Nevada to extract gold. The single largest source is the Central Valley, where rivers carry mercury from remote regions of California to San Francisco Bay.

The ***linkage analysis*** summarizes knowledge about the fate and transport of mercury in the environment, including within the food web. The analysis links the mercury sources to the proposed targets. Significant gaps in available information will result in substantial uncertainty in the linkage analysis.

Load allocations are being developed to attain the proposed targets and to provide maximum flexibility in designing an effective implementation plan. The ***implementation plan*** will incorporate an adaptive management strategy. In addition to listing specific actions intended to reduce mercury loads, the plan will include monitoring to refine load estimates and evaluate progress in meeting the targets. It will also call for special studies to be undertaken to address uncertainties. The plan will lay out how new

information obtained over time will be used to refine the list of actions, the targets, and the allocations.

The mercury TMDL involves close coordination with several Regional Board programs, including the Non-Point Source Program, Toxics Clean-Up Program, the National Pollutant Discharge Elimination System (NPDES) Wastewater Program, and the NPDES Storm Water Program.

Issues:

Complexity and Uncertainty. San Francisco Bay is a complex estuary. Conditions in one part of the estuary do not necessarily represent conditions in other parts, and significant information gaps exist. These gaps create significant uncertainty in evaluating the extent of the mercury problem; the appropriateness of the proposed targets; the importance of the various mercury sources; the links between water quality standards, proposed targets, and mercury sources; and the likely effectiveness of proposed implementation actions. The mercury TMDL will be implemented in phases, with opportunities to incorporate new information as it becomes available.

Controllability of Sources. Many sources of mercury may not be within the Regional Board's jurisdiction to control. The majority of the mercury threatening San Francisco Bay has already been released into the environment. The legacy of historic mining operations is buried in San Francisco Bay sediment, and in some areas, the floor of San Francisco Bay is currently eroding. The tributaries carrying sediment from the vast regions of California within San Francisco Bay's watershed also continue to carry mercury associated with the mining legacy. In addition, a substantial portion of the mercury deposited on San Francisco Bay from atmospheric sources is the result of global mercury emissions.

Agency Coordination. Central Valley rivers deliver a sizable portion of the mercury load entering San Francisco Bay. While the mercury TMDL must identify sources and propose allocations and implementation measures to address them, the jurisdiction of the San Francisco Bay Regional Board does not reach into the Central Valley. Therefore, this TMDL is being coordinated closely with the Central Valley Regional Board and the State Water Resources Control Board.

Precedents and Scrutiny. Many parties have shown interest in the mercury TMDL, and it is expected to face close scrutiny, particularly during the formal review phases of the adoption process. The interest in this TMDL is derived from the wide geographic range of the San Francisco Bay watershed and the numerous parties that may be affected by it. Some dischargers are concerned that the implementation plan will limit growth within the San Francisco Bay Area. Some within the environmental community are concerned about environmental justice (e.g., subsistence fishing). Others are concerned about the Regional Board's ability to ensure that the implementation plan will result in adequate load reductions. Because the mercury TMDL is the first TMDL to be scheduled for San Francisco Bay Regional Board consideration, much of the concern relates to potential precedents that could be set. For all these reasons, the TMDL analyses must be reviewed and documented with a thoroughness appropriate to the high level of scrutiny this TMDL is receiving.

Stakeholder Participation:

Periodically, parties interested in the mercury TMDL are invited to workshops on the status of the TMDL. These stakeholders comprise the Mercury Watershed Council, which is convened specifically as a forum for communicating with mercury TMDL stakeholders and obtaining their feedback. The Mercury Watershed Council includes representatives from the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, the California Department of Fish and Game, storm water agencies, wastewater treatment agencies, industry representatives, environmental community representatives, independent consultants, and others. Meetings are open to all and occur at important milestones throughout the TMDL process. As schedules permit, meetings are also held with individual stakeholders. In addition, wastewater agencies, storm water agencies, industrial dischargers, and the Regional Board have signed a memorandum of understanding, creating the Clean Estuary Partnership, which is contributing resources and analyses to the TMDL effort.